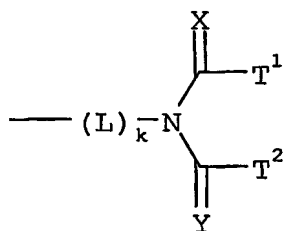


## [CLAIMS]

1. A polymer comprising a phenolic monomeric unit wherein the H atom  
 5 of the hydroxy group of the phenolic monomeric unit is replaced  
 by a N-imide group Q having the structure



wherein L is a linking group,

wherein k is 0 or 1,

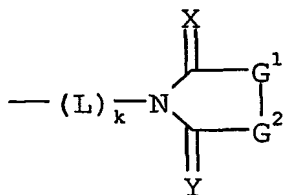
- 10 wherein L is covalently bound to the O atom of the polymer for k  
 is 1, or wherein the N atom of the N-imide group is covalently  
 bound to the O atom of the polymer for k is 0,  
 wherein X or Y are independently selected from O or S, and  
 wherein  $\text{T}^1$  and  $\text{T}^2$  represent a terminal group.

- 15 2. A polymer according to claim 1 wherein the terminal groups  $\text{T}^1$  and  
 $\text{T}^2$  are independently selected from an optionally substituted  
 alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl,  
 heteroaryl, aralkyl or heteroaralkyl group, or wherein  $\text{T}^1$  and  $\text{T}^2$   
 together with the N-imide group represent the necessary atoms to  
 20 form a cyclic structure, or wherein  $\text{T}^1$  and  $\text{T}^2$  represent the  
 following structures  $-\text{L}^1-\text{R}^1$  and  $-\text{L}^2-\text{R}^2$ ,  
 wherein  $\text{L}^1$  and  $\text{L}^2$  represent independently a linking group,  
 wherein  $\text{R}^1$  and  $\text{R}^2$  are independently selected from hydrogen, an  
 optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl,  
 25 heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
 halogen, -CN, or -NO<sub>2</sub>,  
 or wherein two groups selected from each  $\text{L}^1$ ,  $\text{L}^2$ ,  $\text{R}^1$  and  $\text{R}^2$

- 39 -

together represent the necessary atoms to form a cyclic structure.

3. A polymer according to claims 1 or 2 wherein the N-imide group Q  
5 has the following formula

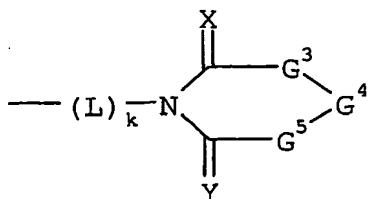


wherein  $G^1$  and  $G^2$  are independently selected from O, S,  $NR^3$  or  $CR^4R^5$ , with the limitation that  $G^1$  is not O or S when  $G^2$  is O and that  $G^1$  is not O or S when  $G^2$  is  $NR^3$ ,

10 wherein  $R^4$  and  $R^5$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-L^3-R^6$ , wherein  $L^3$  is a linking group,

15 wherein  $R^3$  and  $R^6$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$  and  $L^3$  together represent the necessary atoms to form a cyclic structure.

- 20 4. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



wherein  $G^3$  to  $G^5$  are independently selected from O, S,  $NR^7$  or

- 40 -

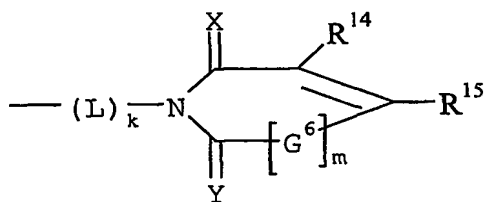
$\text{CR}^8\text{R}^9$ , with the limitation that at least one group, selected from  $\text{G}^3$  to  $\text{G}^5$ , is  $\text{CR}^8\text{R}^9$  and that two neighbouring groups, selected from  $\text{G}^3$  to  $\text{G}^5$ , are not represented by O and S, by O and  $\text{NR}^7$ , by S and  $\text{NR}^7$  or by O and O,

or wherein  $\text{G}^4$  is a linking group,

wherein  $\text{R}^8$  and  $\text{R}^9$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-\text{L}^4-\text{R}^{10}$ , wherein  $\text{L}^4$  is a linking group,

wherein  $\text{R}^7$  and  $\text{R}^{10}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each  $\text{R}^7$ ,  $\text{R}^8$ ,  $\text{R}^9$ ,  $\text{R}^{10}$  and  $\text{L}^4$  together represent the necessary atoms to form a cyclic structure.

5. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



wherein  $\text{G}^6$  is a group selected from O, S,  $\text{NR}^{11}$  or  $\text{CR}^{12}\text{R}^{13}$ ,

wherein  $m$  is 0 or 1,

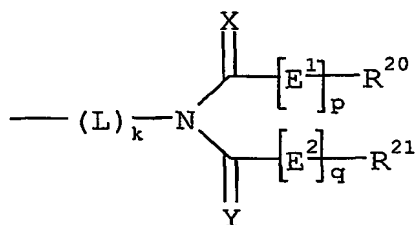
wherein  $\text{R}^{12}$  to  $\text{R}^{15}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-\text{L}^5-\text{R}^{16}$ , wherein  $\text{L}^5$  is a linking group,

wherein  $\text{R}^{11}$  and  $\text{R}^{16}$  are independently selected from hydrogen or an

- 41 -

optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or wherein two groups selected from each  $R^{11}$ ,  $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$ ,  $R^{16}$  and  $L^5$  together represent the necessary atoms to form a cyclic structure.

6. A polymer according to claims 1 or 2 wherein the N-imide group Q has the following formula



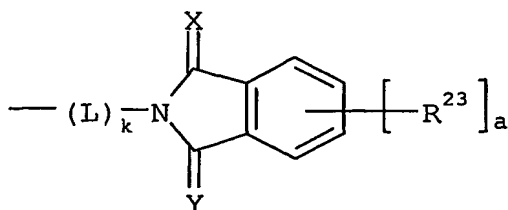
wherein  $E^1$  and  $E^2$  are independently selected from O, S,  $NR^{17}$  or  $CR^{18}R^{19}$ ,

wherein p and q are independently 0 or 1,

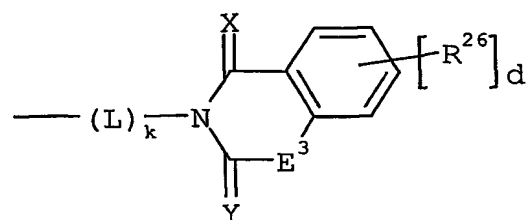
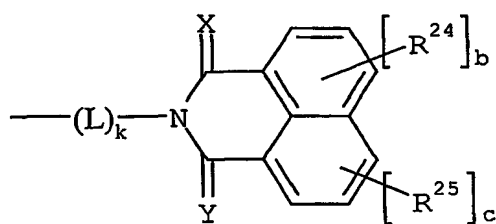
wherein  $R^{18}$  to  $R^{21}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group or  $-L^6-R^{22}$ , wherein  $L^6$  is a linking group,

wherein  $R^{17}$  and  $R^{22}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

7. A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:



- 42 -



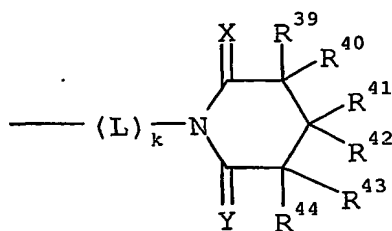
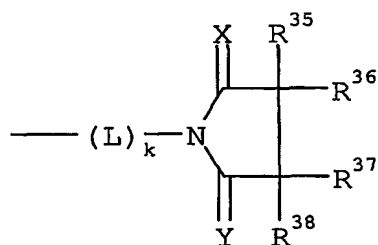
wherein each  $R^{23}$  to  $R^{26}$  are independently selected from hydrogen,  
 an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl,  
 heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
 halogen,  $-\text{SO}_2-\text{NH}-R^{27}$ ,  $-\text{NH}-\text{SO}_2-R^{30}$ ,  $-\text{CO}-\text{NR}^{27}-R^{28}$ ,  $-\text{NR}^{27}-\text{CO}-R^{30}$ ,  
 $-\text{NR}^{27}-\text{CO}-\text{NR}^{28}-R^{29}$ ,  $-\text{NR}^{27}-\text{CS}-\text{NR}^{28}-R^{29}$ ,  $-\text{NR}^{27}-\text{CO}-\text{O}-R^{28}$ ,  
 $-\text{O}-\text{CO}-\text{NR}^{27}-R^{28}$ ,  $-\text{O}-\text{CO}-R^{30}$ ,  $-\text{CO}-\text{O}-R^{27}$ ,  $-\text{CO}-R^{27}$ ,  $-\text{SO}_3-R^{27}$ ,  
 $-\text{O}-\text{SO}_2-R^{30}$ ,  $-\text{SO}_2-R^{27}$ ,  $-\text{SO}-R^{30}$ ,  $-\text{P}(=\text{O})(-\text{O}-R^{27})(-\text{O}-R^{28})$ ,  
 $-\text{O}-\text{P}(=\text{O})(-\text{O}-R^{27})(-\text{O}-R^{28})$ ,  $-\text{NR}^{27}-R^{28}$ ,  $-\text{O}-R^{27}$ ,  $-\text{S}-R^{27}$ ,  $-\text{CN}$ ,  $-\text{NO}_2$ ,  
 $-\text{N}(-\text{CO}-R^{27})(-\text{CO}-R^{28})$ ,  $-\text{N-phthalimidyl}$ ,  $-\text{M-N-phthalimidyl}$ , or  
 $-\text{M}-R^{27}$ , wherein M represents a divalent linking group containing 1  
 to 8 carbon atoms,  
 wherein  $R^{27}$  to  $R^{29}$  are independently selected from hydrogen or an  
 optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl,  
 heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,  
 wherein  $R^{30}$  is selected from an optionally substituted alkyl,  
 alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl,  
 aralkyl or heteroaralkyl group,  
 wherein a and d are independently 0, 1, 2, 3 or 4,  
 wherein b and c are independently 0, 1, 2 or 3,  
 wherein  $E^3$  is selected from O, S,  $\text{NR}^{31}$  or  $\text{CR}^{32}\text{R}^{33}$ ,

- 43 -

wherein  $R^{32}$  and  $R^{33}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group, or  $-L^7-R^{34}$ , wherein  $L^7$  is a linking group,

wherein  $R^{31}$  and  $R^{34}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

8. A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:



wherein  $R^{35}$  to  $R^{44}$  are independently selected from hydrogen, an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,

halogen,  $-\text{SO}_2-\text{NH}-R^{45}$ ,  $-\text{NH}-\text{SO}_2-R^{48}$ ,  $-\text{CO}-\text{NR}^{45}-R^{46}$ ,  $-\text{NR}^{45}-\text{CO}-R^{48}$ ,  $-\text{NR}^{45}-\text{CO}-\text{NR}^{46}-R^{47}$ ,  $-\text{NR}^{45}-\text{CS}-\text{NR}^{46}-R^{47}$ ,  $-\text{NR}^{45}-\text{CO}-\text{O}-R^{46}$ ,

$-\text{O}-\text{CO}-\text{NR}^{45}-R^{46}$ ,  $-\text{O}-\text{CO}-R^{48}$ ,  $-\text{CO}-\text{O}-R^{45}$ ,  $-\text{CO}-R^{45}$ ,  $-\text{SO}_3-R^{45}$ ,

$-\text{O}-\text{SO}_2-R^{48}$ ,  $-\text{SO}_2-R^{45}$ ,  $-\text{SO}-R^{48}$ ,  $-\text{P}(=\text{O})(-\text{O}-R^{45})(-\text{O}-R^{46})$ ,

$-\text{O}-\text{P}(=\text{O})(-\text{O}-R^{45})(-\text{O}-R^{46})$ ,  $-\text{NR}^{45}-R^{46}$ ,  $-\text{O}-R^{45}$ ,  $-\text{S}-R^{45}$ ,  $-\text{CN}$ ,

$-\text{N}(-\text{CO}-R^{45})(-\text{CO}-R^{46})$ ,  $-\text{N-phthalimidyl}$ ,  $-\text{M-N-phthalimidyl}$ , or

$-\text{M}-R^{45}$ , wherein M represents a divalent linking group containing 1

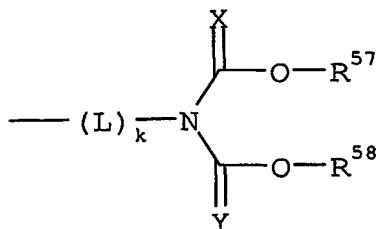
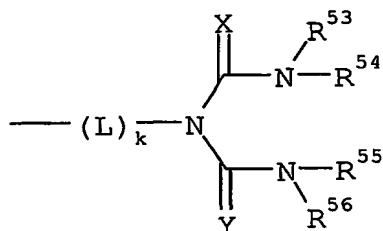
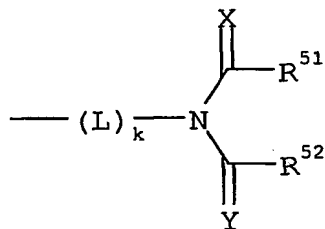
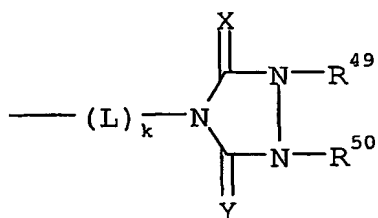
- 44 -

to 8 carbon atoms,

wherein  $R^{45}$  to  $R^{47}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,

wherein  $R^{48}$  is selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

9. A polymer according to claims 1 or 2 wherein the N-imide group Q has one of the following formula:

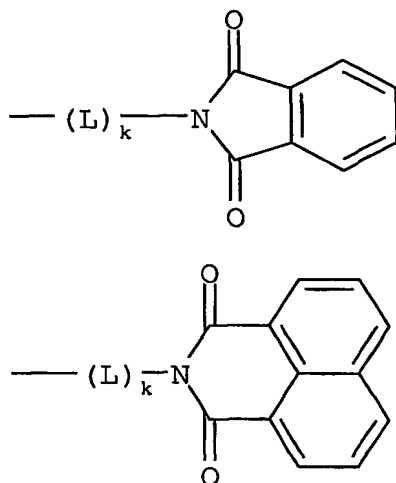


wherein  $R^{49}$  to  $R^{56}$  are independently selected from hydrogen or an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group,

- 45 -

and wherein  $R^{57}$  and  $R^{58}$  are independently selected from an optionally substituted alkyl, alkenyl, alkynyl, cycloalkyl, heterocyclic, aryl, heteroaryl, aralkyl or heteroaralkyl group.

10. A polymer according to claims 1 or 2 wherein the N-imide group  
5 Q has one of the following formula:



11. A polymer according to any of the preceding claims, wherein  
said polymer comprising a phenolic monomeric unit is a novolac,  
10 resol or polyvinylphenol.

12. A heat-sensitive lithographic printing plate precursor  
comprising a support having a hydrophilic surface and an  
oleophilic coating, provided on the hydrophilic surface, said  
coating comprising an infrared light absorbing agent and a  
15 polymer according to any of the preceding claims.

13. A lithographic printing plate precursor according to claim 12,  
wherein said coating further comprises a dissolution inhibitor  
and wherein said precursor is a positive working lithographic  
printing plate precursor.

- 20 14. A lithographic printing plate precursor according to claim 13,  
wherein said dissolution inhibitor is selected from
- an organic compound which comprises at least one aromatic group and a hydrogen bonding site, and/or



- 46 -

- a polymer or surfactant comprising siloxane or perfluoroalkyl units.

15. Use of a polymer, according to any of the claims 1 to 11,  
in a coating of a positive working heat-sensitive lithographic  
printing plate precursor, further comprising

- an infrared absorbing agent and
- a dissolution inhibitor,

for increasing the chemical resistance of the coating against  
printing liquids and press chemicals.

16. A lithographic printing plate precursor according to claim 12,  
wherein said coating further comprising a latent Brönsted acid  
and an acid-crosslinkable compound and wherein said precursor is  
a negative working lithographic printing plate precursor.

17. Use of a polymer, according to any of the claims 1 to 11,  
in a coating of a negative working heat-sensitive lithographic  
printing plate precursor, further comprising

- an infrared absorbing agent,
- a latent Brönsted acid and
- an acid-crosslinkable compound,

for increasing the chemical resistance of the coating against  
printing liquids and press chemicals.

■